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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER				
KIM, TAE JUN				
ART UNIT		PAPER NUMBER		
3746				

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/734,279	Applicant(s) RYU ET AL.	
	Examiner Ted Kim	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/15/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 32 (Fig. 2). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. Applicant has not explicitly identified where/which structure the ablative material is.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 11, 15-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Buswell (32,242,670). Buswell teaches an [ablative is not given significant patentable weight in the preamble is there is nothing in the claim that is specified as ablative] baffle for a liquid rocket engine thrust chamber, comprising: a hub member 70 having a hollow structure, of which the top and bottom parts are opened; a plurality of blade rib members 40 or 42, each of which is connected removably at one end (by welding, which can be unwelded and thus removable) to the outer surface of said hub member 70; and a blade-connecting member 12 having a hollow structure, of which the top and bottom parts are opened, and to the inner part of which each of said blade rib members is connected at the other end; wherein said hub member 70 has a ring shape wherein said blade-connecting member has a ring shape; wherein said blade-connecting member is lower in height than said blade rib member or said hub member; wherein said blade-connecting member is assembled with a plurality of divided parts (see col. 2, lines 68+), each of which is connected to said blade rib member; wherein said blade rib member and said divided part are formed as one body; said blade-connecting member is assembled with equal divided parts of $2N$ or $2N+1$ wherein N is a natural number.

5. Claims 1, 2, 11-13, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Bogue (3,479,819). Bogue teaches an [ablative is not given significant patentable weight in the preamble is there is nothing in the claim that is specified as ablative] baffle for a liquid rocket engine thrust chamber, comprising: a hub member 37 having a hollow

structure, of which the top and bottom parts are opened; a plurality of blade rib members 22, each of which is connected removably at one end 46 to the outer surface of said hub member (col. 3, lines 33+); and a blade-connecting member 20 having a hollow structure, of which the top and bottom parts are opened, and to the inner part of which each of said blade rib members is connected at the other end; wherein said hub member 37 has a ring shape wherein said blade-connecting member 20 has a ring shape; wherein said blade-connecting member is lower in height than said blade rib member or said hub member; wherein a groove is formed on the lower surface of said blade-connecting member (near element number 16); wherein a plurality of second through holes (for bolts 8) are formed in said blade-connecting member 20.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5-8, 10, 14, 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bogue (3,479,819) in view of any of Feemster et al (3,742,701) or Wilson (3,790,088) and optionally in view of Buswell (32,242,670). Bogue teaches various aspects of the claimed invention and further teaches an insulative layer 29 on the blade rib members 22. It is not clear whether this is ablative. However, Feemster teach

an ablative layer 55 to provide for cooling/thermal protection. Wilson teach an ablative layer 8 to provide for cooling/thermal protection. It would have been obvious to one of ordinary skill in the art to employ an ablative material on the hub, the blade-connecting member and the blade rib members to provide for cooling/thermal protection. As for using a metal, it is believed that Bogue would employ metal for the hub, the blade-connecting member and the blade rib members. However, it would have been obvious to one of ordinary skill in the art to employ metal for the hub, the blade-connecting member and the blade rib members, as a well known material employed in the art for its strength and high temperature resistance. Bogue does not teach the use of a plurality of divided parts for the blade-connecting member. Buswell teaches blade-connecting member is assembled with a plurality of divided parts (see col. 2, lines 68+), each of which is connected to said blade rib member; wherein said blade rib member and said divided part are formed as one body; said blade-connecting member is assembled with equal divided parts of $2N$ or $2N+1$ wherein N is a natural number. It would have been obvious to one of ordinary skill in the art to make the blade-connecting member with a plurality of divided parts to facilitate ease of assembly and/or manufacture. Bogue does not teach a zirconia heat resistant coating layer is formed on the inner surface of said blade-connecting member. However, such a layer is old and well known in the art as a thermal barrier layer and it would have been obvious to one of ordinary skill in the art to employ a zirconia thermal barrier layer to protect the blade connecting member.

8. Claims 1, 2, 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doll et al (6,352,030) in view of Bogue (3,479,819). Doll et al teach an ablative baffle for a liquid rocket engine thrust chamber, comprising: a hub member 62 having a hollow structure 64, of which the top and bottom parts are opened; a plurality of blade rib members 66, each of which is connected at one end to the outer surface of said hub member 62; and a blade-connecting member 60 having a hollow structure, of which the top and bottom parts are opened, and to the inner part of which each of said blade rib members is connected at the other end. Doll et al do not teach the blade rib members are connected *removably* at one end to the hub member. Bogue teaches blade rib members 22 which are connected removably at one end 46 to the outer surface of said hub member (col. 3, lines 33+). Doll et al do not teach a plurality of second through holes in the blade connecting member. Bogue teaches a plurality of second through holes for 8 in order to facilitate a secure connection. It would have been obvious to one of ordinary skill in the art to employ a plurality of second through holes, to facilitate a secure connection. Doll et al do not teach a zirconia heat resistant coating layer is formed on the inner surface of said blade-connecting member. However, such a layer is old and well known in the art as a thermal barrier layer and it would have been obvious to one of ordinary skill in the art to employ a zirconia thermal barrier layer to protect the blade connecting member.
9. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doll et al, as applied above and further in view of any of Feemster et al (3,742,701) or Wilson (3,790,088). Doll et al teach the wheel member 32 is reusable and made of stainless

steel. Doll et al do not teach the wheel member has ablative material. However, Feemster teach an ablative layer 55 to provide for cooling/thermal protection. Wilson teach an ablative layer 8 to provide for cooling/thermal protection. It would have been obvious to one of ordinary skill in the art to employ an ablative material on the hub, the blade-connecting member and the blade rib members to provide for cooling/thermal protection.

10. Claims 3, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doll et al in view of Bogue (3,479,819), as applied above and further in view of Alexander et al (2,884,859). Doll et al teach various aspects of the claimed invention but do not teach the use of ignition holes in the blade rib members. Alexander et al teach blade rib members with ignition holes 28. It would have been obvious to one of ordinary skill in the art to employ ignition holes, in order to further promote combustion. As for making the connecting holes on the same circumference as the ignition holes, this is within the ordinary skill in the art and would have been obvious to do to facilitate ease of manufacture.

11. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doll et al in view of Buswell. Doll et al do not teach the use of a plurality of divided parts for the blade-connecting member. Buswell teaches blade-connecting member is assembled with a plurality of divided parts (see col. 2, lines 68+), each of which is connected to said blade rib member; wherein said blade rib member and said divided part are formed as one body; said blade-connecting member is assembled with equal divided parts of $2N$ or $2N+1$ wherein N is a natural number. It would have been obvious to one of ordinary skill

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in the art to make the blade-connecting member with a plurality of divided parts to facilitate ease of assembly and/or manufacture.

12. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over any of the art as applied to claim 7 above, and further in view of Rumbold (3,545,203). The prior art do not teach the second core having a plurality of wedges formed in the longitudinal direction. Rumbold teaches a plurality of wedges (see Fig. 2) in order to facilitate a secure connection. It would have been obvious to one of ordinary skill in the art to employ a plurality of wedges to facilitate a more secure connection.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are

571-273-8300 for Regular faxes and 571-273-8300 for After Final faxes.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thorpe, can be reached at 571-272-4444.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance

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Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>

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